

across palate (outside m^1) 5; length of palatal foramina 3; distance from palation to basion 11.3; length of upper cheek-teeth 3.

Hab. Burao, Somaliland. Altitude 4000 feet.

Type. Adult male. Collected by Mr. Bury on March 1st, 1906.

This Somaliland dormouse is so very much paler in colour than any of the allied species, and presents so many striking cranial differences, that it must be regarded as representing a distinct species. In addition to the type the Museum possesses three other specimens from the same locality, all very similar to the type in colour and dimensions.

It gives me great pleasure to name this handsome species after Dr. Drake Brockman, to whom mammalogical science is already indebted for much useful work in connection with the fauna of Somaliland.

XLI.—*Further Notes on Merlia normani, Kirkp.*

By R. KIRKPATRICK.

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AT the end of a communication ('Annals,' July 1909, p. 48), entitled "Notes on *Merlia normani*, Kirkp.," I stated that "The definition of *Merlia* must be emended in a future paper." After examining 100 or more slides with over 2000 good sections of *Merlia* prepared from well-preserved specimens varying in size and age, I have come to the conclusion that *Merlia normani* is a sponge with a siliceous and calcareous skeleton. The absolutely convincing proof, such as would be afforded by seeing an embryo settle down and develop the siliceous and calcareous elements, is not at present forthcoming, though I hope, by visiting Porto Santo Island at different periods of the year, to obtain that evidence. I have, however, beautiful sections of a young sponge which can only be a few days old and which possesses all the elements found in the adult condition.

The evidence is so strong in favour of the view here expressed, that I can now see no possibility of coming to any other conclusion. To put the matter as briefly as possible, the reasons for this belief are as follows:—

I have dredged up numerous fresh living specimens, and have always found the same elements, viz. a sponge, in

which siliceous spicules are present, growing in a calcareous honeycomb-like framework constructed of vertical tubes with perforate horizontal tabulæ. The upper part of *Merlia* resembles an ordinary siliceous sponge. The lower part in the "crypts" * or honeycomb spaces is composed mostly of very large granular cells, more or less separated by connective-tissue cells, the whole being in continuity, through the central orifice usually present in each tabula, with the tissues of the upper part of the sponge.

Further, the masses of crypt-cells are surrounded by a kind of epithelium. The large crypt-cells have *not* grown down into the crypts, but have developed in the position in which they are found: for I have seen, by a process of grinding down, crypts at the base of the sponge full of crypt-cells, and, after having destroyed the latter with Eau de Javelle, have often seen the orifice in the roof of the crypt, *i. e.* in the tabula, narrowed to the smallest slit sometimes no more than $1\ \mu$ in width. As some of the crypt-cells are about $200\ \mu$ in area end on, it would be ridiculous to assume that these huge masses of huge cells have grown down through five or six stories and squeezed their way through slits sometimes only $1\ \mu$ in diameter. Moreover, the crypt-cells are not loose and isolated, but enmeshed in a network of connective tissue and surrounded by a kind of epithelium.

In some ground-down sections of the skeleton I have seen tabulæ absolutely imperforate, but I had not observed whether the crypts thus roofed over had contained cells or not.

Accordingly *Merlia* is not a parasite growing over and into a calcareous organism, and it is not a Foraminiferan. Further, it is certainly not a Cœlenterate or a Polyzoon. In fact, it is now beyond a doubt seen to be a sponge and nothing but a sponge.

Merlia is of unique interest, not only in itself, but also on account of the resemblance, in some respects, of its calcareous skeleton to certain of the Monticuliporas.

Not only is there, on surface view, a polygonal reticulum with tubercles at the nodes of the meshes, and not only are there tabulæ with a central hole, but there are radial sutural markings precisely as in *Rhaphidopora* (*Chaetetes*) *stromatoporoïdes*, Roemer (Nicholson and Foord, "On a new Genus of Devonian Corals," *Annals & Mag. N. H.* (5) xvii. 1886, p. 393, pl. xvi. fig. 5). Of course these resemblances may be merely homœomorphous.

* The useful terms "crypt" and "crypt-cell" were suggested by Prof. E. A. Minchin. The cells, which look like large granular gemmule cells, appear to me to be probably "caicoblasts."

The problem of the position of the *Monticuliporas* has baffled several generations of geologists and zoologists, who have regarded them as Foraminifera, Sponges, Cœlenterata, or Polyzoa. At last a living organism has been found with a skeletal structure showing many resemblances to these Palæozoic fossils.

Sir John Murray informs me that he has seen a dry specimen of a coral-like organism from the West Indies in some respects like *Merlia*, and Prof. Stanley Gardiner has obtained from the Indian Ocean somewhat similar specimens also dried. These organisms have been spoken of as Foraminifera or Alcyonarian Corals. Unfortunately, dried specimens afford scarcely more information than that which is available for the palæontologist. I can only say that if the specimens referred to are related to *Merlia* they are sponges. I have seen in the British Museum a Foraminiferan from the Indian Ocean with a surface reticulum and nodal tubercles, but the skeleton is obviously Foraminiferan.

I originally described *Merlia* as a Pharetron sponge ('Annals,' Dec. 1908, p. 510). Later ('Annals,' July 1909, p. 47), I concluded that the upper part was a distinct siliceous sponge, and at one time the organism seemed to me to be an example of symbiosis between a siliceous and a degenerate Pharetron sponge. Huxley, in his essay on Hume, remarks that if anyone stated that he had seen a Centaur careering about in Piccadilly, we would feel justified, even if we believed in the good faith and acumen of the narrator, in demanding very strong proofs. If the statement were accepted, we would perhaps wonder whether the Centaur were a Horse-Man, a Man-Horse, or possibly, from some lurking doubt as to the observing powers of the narrator, only a Man on a Horse.

It is at present believed that the Sponge Phylum originally divided into three main branches (*Calcarea*, *Triaxonia*, *Tetra-xonia*), and that the division between Calcareous and Siliceous Sponges extends deep down to the very roots. The existence of a sponge with a calcareous and a siliceous skeleton had seemed to me almost as improbable as that of a Centaur. So it was not surprising that *Merlia* was regarded by me to be an instance of symbiosis on a parallel with the Man-on-the-Horse theory of the Centaur, and that I was misled into establishing the genus *Noronha*, which must now become a *nomen nudum*.

The theory that *Merlia* is a siliceous sponge that has "taken on" the function of forming a calcareous skeleton appears at first sight to commend itself, because we seem able to locate the sponge in a particular group of Monaxonellida,

and, further, the flagellated chambers and collar cells resemble those of Tetraxonid Sponges. Prof. Minchin has reminded me of the tendency of gemmule cells to accumulate at the base of a sponge, and has suggested that possibly the calcareous structure may be of the nature of a protective coating for gemmule cells. There are considerable difficulties, however, in the way of accepting this ingenious theory.

All that it was intended to bring out in these notes was the fact that *Merlia* is a sponge with a siliceous and calcareous skeleton, and that we are justified in assuming that there is now more evidence—slight as it still is—in favour of the theory that some Monticuliporas are Sponges than in that of any other theory as to the nature of these fossils.

A full account of *Merlia* with figures will shortly be published in the 'Quarterly Journal of Microscopical Science.'

XLII.—*Description of a new Species and a new Subspecies of European Bats.* By G. E. H. BARRETT-HAMILTON.

THERE is in the British Museum of Natural History a bat taken in Roumania by the late W. Dodson, and having the general appearance of a small Serotine. I have long suspected this to be the first known example of a hitherto undetected species, but dared not describe it on the strength of a single specimen. Recently, however, Mr. Gerrit S. Miller, Jun., has had the courtesy to send me for comparison a similar although somewhat larger specimen from the collection of the United States National Museum, taken at St. Gothard, Switzerland. I have now, therefore, no hesitation in describing the new species as follows:—

Vespertilio sodalis, sp. n.

This bat resembles *V. serotinus* of Europe in general appearance, proportions and colour, but is smaller. The teeth are relatively larger though not so broad, the length of the cheek-series being actually about as long as in *V. serotinus*. The skull is relatively stouter and shorter and the cranium rounder and more inflated than in *V. serotinus*.

In colour the two specimens are dissimilar. In both the ears and membranes are, as usual, dusky. In the Roumanian bat the upperside is near "Prout's brown," the hairs being tipped with tawny, especially on the lower back; the underside is near "isabella color." The Swiss bat is everywhere